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Job No.: CTCE/BBMP/W.No.14/KRIDL/WMM/Gradation/2014-15

03.03.2015

GRADATION FOR WMM
MORTH TABLE-400-11

Client : **Asst. Executive Engineer,** T. Dasarahalli Sub Division, BBMP, Bangalore.

Agency : **Technical Manager (West),** KRIDL, PIU, Bangalore.

Name of Work : Improvements to roads and drains Cross Roads at Kirloskar Layout Bagalagunte in Ward No. 14, Bagalagunte, BBMP, Bangalore.

Reference : EE/DD/WO/260/2014-15 Dated: 28.02.2015

Date of Testing : 03.03.2015

Material : WMM

Sample Location : WMM Mix Plant

Oven Dry Wt (gm): **27800**

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Spec.Limits
53	0	0	0	100	100
45	958	958	3.4	96.6	95-100
22.4	7549	8507	30.6	69.4	60-80
11.2	5392	13899	50.0	50.0	40-60
4.75	5197	19096	68.7	31.3	25-40
2.36	2788	21884	78.7	21.3	15-30
0.600	2362	24246	87.2	12.8	8-22
0.075	2029	26275	94.5	5.5	0-8

Note:

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69. ದಾಸರಹಳ್ಳಿ ಉಪ ವಿಭಾಗ
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Job No.: CTCE/BBMP/W.No.14/KRIDL/WMM/AIV/2014-15

03.03.2015

Aggregate Impact Value

IS: 2386 Part IV

Client	**Asst. Executive Engineer,** T. Dasarahalli Sub Division, BBMP, Bangalore.
Agency	**Technical Manager (West),** KRIDL, PIU, Bangalore.
Name of the Work	Improvements to roads and drains Cross Roads at Kirloskar Layout Bagalagunte in Ward No. 14, Bagalagunte, BBMP, Bangalore.
Reference	EE/DD/WO/260/2014-15 Dated: 28.02.2015
Source / Location	WMM Plant
Type of Mix	Wet Mix macadam
Date of Testing	03.03.2015

Sl No.	Details	Trial No. 1	Trial No. 2	Average
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	381	384	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	82	85	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	299	299	
4	Aggregate Impact value = percent fines	21.52	22.14	
	100* (W_2/W_1)%			**21.83**

Comments:

→ Maximum allowable Aggregate Impact value for Wet mix Macadam is 30%

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Job No.: CTCE/BBMP/W.No.14/KRIDL/WMM/Shape.T/2014-15 : 03.03.2015

DETERMINATION OF FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

Client	: **Asst. Executive Engineer,** T. Dasarahalli Sub Division, BBMP, Bangalore.
Agency	: **Technical Manager (West),** KRIDL, PIU, Bangalore.
Name of Work	: Improvements to roads and drains Cross Roads at Kirloskar Layout Bagalagunte in Ward No. 14, Bagalagunte, BBMP, Bangalore.
Reference	: EE/DD/WO/260/2014-15 Dated: 28.02.2015
Technical Reference	: IS 2386(Part 1) 1963 (RA 2007)
Type of Mix	: Wet Mix Macadam
Date of Testing	: 03.03.2015

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Result : Flakiness Index = **11.53%**

Elongation Index = **13.67%**

Result : Combined Flakiness & Elongation index **25.20%**

Comments:

Maximum allowable Flakiness & Elongation Index for Wet Mix Macadam is 30%

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T-2377

Job No.: CTCE/BBMP/W.No.14/KRIDL/CSR-03/790k/QB/2014-15

18.03.2015

TEST REPORT ON DETERMINATION OF BITUMEN CHARACTERISTICS

*CUSTOMER	:	**Asst. Executive Engineer,** T. Dasarahalli Sub Division, BBMP, Bangalore.
*AGENCY	:	**Technical Manager (West),** KRIDL, PIU, Bangalore.
*NAME OF THE WORK	:	Improvements to roads and drains Cross Roads at Kirloskar Layout Bagalagunte in Ward No. 14, Bagalagunte, BBMP, Bangalore.
REFERENCE	:	EE/DD/WO/260/2014-15 Dated: 28.02.2015
*SAMPLE ID	:	Bitumen
DATE OF SAMPLING	:	16.03.2015
DATE OF TESTING	:	18.03.2015

The results of the tests conducted on the bitumen sample.

Sl. No	Description	Test Method as per IS	Test Result	Requirement as per IS:73:2013
1	Penetration at 25 ^{0}C, 1/10 mm	IS :1203 -1978 (RA-2009)	89	80 to 100
2	Softening point, ^{0}C	IS :1205 -1978 (RA-2009)	48	Min. 40
3	Ductility at 27^{0}C, cm	IS :1208 -1978 (RA-2009)	100 >	Min. 75
4	Flash Point, ^{0}C	IS :1209 -1978 (RA-2009)	302	Min. 220

*Information is furnished by the Customer/Representative.

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VISHWANATH .C
Quality Manager

#23/14, 7th Cross, 3rd Stage, 4th Block, Shakthi Ganapathi Nagara, Basaveshwaranagar, Bangalore-79.
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Job No.: CTCE/BBMP/W.No.14/KRIDL/BM/Bitumen/2015-16 19.03.2015

BITUMEN CONTENT DETERMINATION OF BITUMINOUS MACADAM MIX

AS per IRC:SP:-1984

CLIENT	**Asst. Executive Engineer,** T. Dasarahalli Sub Division, BBMP, Bangalore.
AGENCY	**Technical Manager (West),** KRIDL, PIU, Bangalore.
NAME OF THE WORK	Improvements to roads and drains Cross Roads at Kirloskar Layout Bagalagunte in Ward No. 14, Bagalagunte, BBMP, Bangalore.
REFERENCE	EE/DD/WO/260/2014-15 Dated: 28.02.2015
SAMPLE I/D	Roads in Kirloskar Layout, Ward No. 14, Bagalagunte
DATE OF TESTING	19.03.2015

BITUMEN CONTENT DETERMINATION

Description	Trail 1	Trail 2
1. Weight of Mixture before Test, g	500	500
2. Weight of Mixture after Test, g	482	482.5
3. Weight of Asphalt and Mineral matter Extracted, g	-	-
4. Weight of Mineral Matter, g.	-	-
5. Weight of Ash, g		
6. Weight of Bitumen Extracted, g. (corrected)	18	17.50
7. Bitumen content in %	3.60	3.50
8. Average	**3.55**	

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Job No.: CTCE/BBMP/W.No.14/KRIDL/BM/Gradation/2015-16 19.03.2015

GRADATION DETERMINATION OF BITUMINOUS MACADAM MIX

As per IS2386 and IRC:SP:11-1984

CLIENT	**Asst. Executive Engineer,** T. Dasarahalli Sub Division, BBMP, Bangalore.
AGENCY	**Technical Manager (West),** KRIDL, PIU, Bangalore.
NAME OF THE WORK	Improvements to roads and drains Cross Roads at Kirloskar Layout Bagalagunte in Ward No. 14, Bagalagunte, BBMP, Bangalore.
REFERENCE	EE/DD/WO/260/2014-15 Dated: 28.02.2015
SAMPLE I/D	Roads in Kirloskar Layout, Ward No. 14, Bagalagunte
DATE OF TESTING	19.03.2015

GRADATION AFTER EXTRACTION

Sieve Size in mm	Trail 1				Specified Limits as per MORTH specification table 500-04 (Grading-2)
	Weight Retained, gm	% Retained	%Cummulative Retained	% Passing	
26.5	0	0	0	100	100
19	35.26	7.32	7.32	92.68	90-100
13.2	105.87	21.96	29.28	70.72	56-88
4.75	246.93	51.23	80.51	19.49	16-36
2.36	52.34	10.86	91.37	8.63	4-19
0.3	16.97	3.52	94.89	5.11	2-10
0.075	6.35	1.32	96.21	3.79	0-8

Sieve Size in mm	Trail 2				Specified Limits as per MORTH specification table 500-04 (Grading-2)
	Weight Retained, gm	% Retained	%Cummulative Retained	% Passing	
26.5	0	0	0	100	100
19	32.42	6.72	6.72	93.28	90-100
13.2	106.84	22.14	28.86	71.14	56-88
4.75	245.78	50.94	79.80	20.20	16-36
2.36	47.25	9.79	89.59	10.41	4-19
0.3	17.98	3.73	93.32	6.68	2-10
0.075	12.31	2.55	95.87	4.13	0-8

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Job No.: CTCE/BBMP/W.No.14/KRIDL/SDBC/Bitumen/2014-15 20.03.2015

BITUMEN DETERMINATION OF SEMI DENSE BITUMINOUS CONCRETE MIX

AS per IRC : SP : 11 - 1984

CLIENT	**Asst. Executive Engineer,** T. Dasarahalli Sub Division, BBMP, Bangalore.
AGENCY	**Technical Manager (West),** KRIDL, PIU, Bangalore.
NAME OF THE WORK	Improvements to roads and drains Cross Roads at Kirloskar Layout Bagalagunte in Ward No. 14, Bagalagunte, BBMP, Bangalore.
REFERENCE	EE/DD/WO/260/2014-15 Dated: 28.02.2015
SAMPLE I/D	Roads in Kirloskar Layout, Ward No. 14, Bagalagunte
DATE OF TESTING	20.03.2015

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BITUMEN CONTENT DETERMINATION

Description	Trail 1	Trail 2
1. Weight of Mixture before Test, g	500	500
2. Weight of Mixture after Test, g	474	475
3. Weight of Asphalt and Mineral matter Extracted, g	-	-
4. Weight of Mineral Matter, g.	-	-
5. Weight of Ash, g		
6. Weight of Bitumen Extracted, g. (corrected)	26	25.00
7. Bitumen content in %	5.20	5.00
8. Average	**5.10**	

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GRADATION DETERMINATION OF SEMI DENSE BITUMINOUS CONCRETE MIX

As per IS : 2386 and IRC : SP : 11 - 1984

CLIENT	**Asst. Executive Engineer,** T. Dasarahalli Sub Division, BBMP, Bangalore.
AGENCY	**Technical Manager (West),** KRIDL, PIU, Bangalore.
NAME OF THE WORK	Improvements to roads and drains Cross Roads at Kirloskar Layout Bagalagunte in Ward No. 14, Bagalagunte, BBMP, Bangalore.
REFERENCE	EE/DD/WO/260/2014-15 Dated: 28.02.2015
SAMPLE I/D	Roads in Kirloskar Layout, Ward No. 14, Bagalagunte
DATE OF TESTING	20.03.2015

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GRADATION AFTER EXTRACTION

Sieve Size in mm	Trail 1				Specified Limits as per MORTH specification table 500-15 (Grading-2)
	Weight Retained, gm	% Retained	%Cummulative Retained	% Passing	
13.2	0	0	0	100	100
9.5	25.43	5.36	5.36	94.64	90-100
4.75	250.78	52.91	58.27	41.73	35-51
2.36	53.46	11.28	69.55	30.45	24-39
1.18	28.95	6.11	75.66	24.34	15-30
0.3	56.41	11.90	87.56	12.44	9-19
0.075	35.87	7.57	95.13	4.87	3-8

Sieve Size in mm	Trail 2				Specified Limits as per MORTH specification table 500-15 (Grading-2)
	Weight Retained, gm	% Retained	%Cummulative Retained	% Passing	
13.2	0	0	0	100	100
9.5	32.56	6.85	6.85	93.15	90-100
4.75	255.41	53.77	60.63	39.37	35-51
2.36	42.68	8.99	69.61	30.39	24-39
1.18	41.73	8.79	78.40	21.60	15-30
0.3	33.16	6.98	85.38	14.62	9-19
0.075	39.87	8.39	93.77	6.23	3-8

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